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BUREAU OF
ENTOMOLOGY AND PLANT QUARANTINE
NEWS LETTER

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16 Screw worm
21 Mosquito larvae [illegible]

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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

NEWS LETTER

FOR JUNE 1934

Vol. I (Not for publication) No. 1

ADMINISTRATION

The consolidation incident to the creation of this Bureau has made it imperative to discontinue the Monthly Letter of the Bureau of Entomology (complete in 241 numbers), the News Letter of the Bureau of Plant Quarantine (complete in 43 numbers), and the Blister Rust News (complete in 17 volumes and 6 numbers of Vol. 18), and to inaugurate a new house organ, "The News Letter of the Bureau of Entomology and Plant Quarantine", of which this is the first number. Items will necessarily be more brief and simple than they were in the former periodicals; first, to make a publication of reasonable size and, second, to make one readable to a group covering much larger and more diverse fields of activity.

It is hoped that the new News Letter will create a unity of interest in the Bureau by acquainting all of the personnel with the progress being made in the various lines of work.

Attention is directed to the organization chart of the Bureau on the last page of this number.

FRUIT INSECT INVESTIGATIONS

Observation on Blastophaga psenes L.--Perez Simmons, in charge of the Fresno, Calif., laboratory, reports that in an experiment to find suitable materials for sealing the apical opening of figs to exclude insects that cause infestation and infection of the ripening fruit, several hundred Calimyrna figs were sealed during the progress of caprification. In some instances numerous Blastophaga were sealed within the fig cavity. It was observed later that the insects made desperate efforts to force their way through the seals, which may indicate that the instinct to leave the green figs after attempting to oviposit is as compelling as that which prompts the wasps to struggle to enter, even to the point of exhaustion and death. The almost complete absence of remains of Blastophaga in ripe caprified figs is further evidence that such is the case.

DATE SCALE ERADICATION

During the month of June ground inspection was continued in previously infested plantings of dates. In inspection from the ground only, few main leaves of the larger palms can be inspected. However, the offshoots or suckers at the bases of the palms can be inspected, and it is on the offshoots that the scales from deep-seated infestations generally appear. When a palm is heavily infested scale is present on the fiber-covered leaf bases. Some scale so situated may have escaped treatment and will not be in evidence until an offshoot grows from the infested area on the trunk. Ground inspection also discloses infestations on young palms that may have had leaf-base infestations when planted. An offshoot taken from a previously infested palm may have near the union with the parent palm scale that has not yet spread to the leaves. The infestation on such an offshoot may persist for some time unobserved, especially if the offshoot makes little growth or is deeply planted. Instances of this kind are not common with Deglet Noor palms, the most numerous variety in the Coachella Valley, but occur more often with other varieties and seedlings.

MEXICAN FRUIT FLY

Fruit flies continue to decrease in citrus groves in Texas.--The decrease in the numbers of Anastrepha taken in groves, noted in the News Letter of the Bureau of Plant Quarantine, June 30, 1934, continued throughout June. Only 1 adult of A. ludens Loew and 29 of A. pallens Coq. were taken in the traps. None of the other species taken frequently during the past months were caught. Owing to the continued rapid fermentation of the malt bait in the traps, the formula for brown sugar attrahent in use at the Mexico City laboratory was substituted. The use of this bait left the traps in a much cleaner condition and therefore easier to operate. One larva of A. ludens was taken in an "off-bloom" grapefruit from a grove in the Mission district. Both adults and larvae of A. ludens had previously been taken in this grove. During the latter part of the month inspections were made of 231 groves in which "off-bloom" fruit had been observed at the time of making the tree-to-tree inspections. With the exception of the grove referred to, these inspections gave negative results. Collection of brush fruits throughout the Valley was continued throughout the month. As predicted, the number of adult A. ludens trapped in Matamoros in June increased considerably over the previous month. A total of 35 adult A. ludens were taken in Matamoros and 1 in Reynosa, the first adult of this species ever taken in the latter town. Following the receipt of reports from the local inspector in Matamoros relative to the large numbers of infested mangoes being received at that market, the officials of the Mexican Department of Agriculture issued instructions to the inspectors in the States of Michoacan and Colima to restrict the shipments of mangoes to the Mexican border towns. As a result, the collections of larvae from imported fruit in Matamoros decreased to about one-half the number taken during May.

JAPANESE BEETLE, MOTHS, AND EUROPEAN CORN BORER

Shipments of plants and vegetables from Japanese beetle territory.--Quantity orders certified from the Philadelphia district in June included 200 large evergreens destined to Canada, 5,000 bench gardenia plants going to Ohio, and 1,500 bench roses consigned to a classified dealer in Connecticut. Replacement orders were also responsible for continued shipping in June. With the exception of one establishment, movements of rose stocks decreased. Green beans are again being shipped in large quantities to Middle Western States from Baltimore, the Eastern Shores of Maryland and Virginia, southern New Jersey, and Morrisville and Bustleton, Pa. Bean-inspection machines were removed from their winter storage at the Frankford Arsenal in Philadelphia and delivered by truck to the inspection centers in Baltimore, South Jersey, and the two points in Pennsylvania. Three bean-inspection trays were shipped to Boston, and one tray and one machine to Syracuse, N.Y. New growth on evergreen and deciduous nursery stock usually marks the end of spring sales of such material. In a number of instances nurserymen for whom stock is inspected have successfully dug and shipped plant material out of season. Although ordinarily the season for shipments of vegetables and dahlia plants ends early in June, such shipments from New Jersey continued into July.

Lead arsenate controls Jap beetle on ballground.--For the past 4 years Shibe Park, the baseball field of the Philadelphia Athletics of the American League, has been treated with lead arsenate. Each year about 350 pounds of the poison has been applied. This year the poison content of the turf is sufficient and additional treatment is unnecessary. The lead arsenate was also effective in destroying night crawlers, which at one time infested the infield badly. Bonemeal was mixed with lead arsenate to stimulate growth of the turf. The grounds are now in excellent condition. During the heavy flight of the insect, the beetles sometimes swarm on the field and interfere with the pitcher and other players. In a recent interview with the ground keeper, it was learned that the club had been withholding shipments of potter's clay to their training grounds in Florida because of the Japanese beetle quarantine. This clay is used at home plate and the pitcher's box. The Florida soil is said to be too fine to allow proper footing for the pitchers. Arrangements were made whereby the clay may be certified when it is desired to ship it to Florida at the beginning of the next training season.

Jap beetle traps placed.--Although the New Jersey trap sales plan originally was contingent upon receipt of orders for 1,000 traps, the program was carried through on the basis of 510 orders received for the large sized traps at a price of $1.50 each. Placement of traps began in Virginia on June 18. Trap distribution in Maryland started on June 21. Trapping activities in St. Louis, Mo., got under way June 19. At the end of June the accomplishments included traps set in 38 Virginia localities, 2 cities in West Virginia, and 44 Maryland communities, in addition to the 800 traps set up in St. Louis. Trapping activities by the State of Delaware began in Clayton, Delmar, Middletown, Smyrna, and a number of farms in Kent County in mid-June. These traps were all baited and in operation by June 25.

All certified greenhouses in infested sections throughout the regulated territory were thoroughly examined early in June to determine that all doors and windows were thoroughly beetle-proofed with screening, and that all glass in the ranges was tightly joined and intact.

A maritime inspector began his tour along the Philadelphia waterfront. This inspector covers approximately 12.5 miles daily afoot. All ships are boarded to determine compliance with the quarantine on fruits and vegetables before the vessels proceed to nonregulated ports. Ship chandlers cooperated

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very well in supplying only certified produce to vessels sailing for ports outside the restricted zone. Watchmen at piers have also been educated to the point where they will permit quarantined articles to pass onto the piers only when accompanied by a certificate. Materials for the Philadelphia inspection platform were removed from storage at the Frankford Arsenal on June 18 and the platform erected at Third and Florists Streets on June 18 and 19. Noticeable emergence of beetles started in and around Philadelphia about June 11. The adults did not appear in numbers in the suburban sections of the city until the week of June 25. Spraying activities to combat the insect began shortly thereafter on numerous private estates. The adults were particularly active on June 29, when the thermometer reached a new high for that date of 102° F. Considerable trouble was experienced in the produce markets in keeping fruits and vegetables from spoiling and wilting under the high temperatures.

On June 15 men were placed in the field to scout uninfested classified nursery and greenhouse establishments in Virginia, District of Columbia, Maryland, and Delaware. Scouting in the Middle Atlantic and New England States will begin after July 1. Scouting of sand pits in New Jersey during the week of June 16 to 22 resulted in positive finds in a number of establishments. As soon as conditions warrant, shipments of sand will be certified only after fumigation. Screening at establishments processing sand and marl was also checked. By the end of June a number of new infestations had been found in nurseries, greenhouses, and farms in Maryland, necessitating additional handling of vegetables in order to make actual inspections of the produce shipped. Prior to the finding of the infestations it had been possible to certify the products on the basis of negative finds in the fields where grown.

Progress of corn borer certification.--Owing to the extremely dry and hot weather in Ohio, growers endeavored to dispose of most of their stock early in June. Dahlia growers stated that not for a long time had they received so many orders for dahlia plants so late in the season. Some of the growers of dahlias were unable to fill all orders received, as they needed the remaining stock for planting. Several of the growers were obliged to dig stock already planted to enable them to fill the late orders.

Inspection of large quantities of beets with tops and green beans is required at the Boston market to conform to corn borer quarantines issued by Canada and the State of Maine.

GYPSY MOTH AND BROWN-TAIL MOTH QUARANTINE ENFORCEMENT

The gypsy moth in New England.--For several weeks prior to June 15, six temporary inspectors scouted for gypsy moth egg clusters in towns in the part of Maine designated as lightly infested and adjacent to the generally infested territory. Work was performed in 83 towns, an average of 12 hours being devoted to each town. Gypsy moth egg clusters were found in considerable numbers in many of the towns scouted. In central Maine about 10 percent of the egg clusters found above the snow line were hatched, with a 60 percent hatch of those found below the snow line. In western Maine a similar hatch was observed above the snow line, with a 50 percent hatch of egg clusters below the snow line. Surveys to determine the degrees of infestation within the infested zone were made by district inspectors in the course of their travels throughout their territories. Woodlots in the vicinity of Westerly and Charlestown, R.I., were found to be heavily infested with gypsy moth larvae. One of the inspectors in eastern Massachusetts reports heavy defoliation of woodlands in the vicinity of Milford and Hopkinton. An unusually heavy infestation of gypsy moths has occurred in the vicinity of Greenfield, Mass., this year. In one nearby town an area of approximately 500 acres of woodland shows defoliation up to 100 percent. The caterpillars in this particular colony were feeding on sweet fern and had also migrated to a nearby field where they were eating standing grass. Several towns in the Greenfield area disclosed similar conditions.

Movement of building materials.--Granite shipments in the Quincy, Mass., district continued strong for the month of June. The heavy shipments were of building and monumental granite. Quantities of building granite were shipped to Williamsport, Pa. The anticipated seasonal decrease in truck shipments after Memorial Day rush did not materialize. In the Portland, Maine, district, arrangements were made to have about 2,000,000 board feet of lumber, which was sawed before the egg-laying season, yarded in a bare, open field. After drying, the lumber is to be shipped to nonregulated territory. Its storage at a point considerably removed from any source of infestation will facilitate its certification at the time of shipment.

PREVENTING SPREAD OF MOTHS

Spraying against gypsy moth.--By the end of June the feeding of gypsy moth caterpillars was practically over for the year. As spraying operations must be conducted during the interval between the full growth of foliage and the end of the caterpillar feeding season, they were confined almost entirely to the month of June. This year a total of 11,537 acres of woodland in New England and Pennsylvania were sprayed. In addition over 8,000 scattered trees and over 2,700 properties in residential sections have received thorough spraying. Of these totals 3,500 acres of woodland, 5,000 scattered trees, and the entire number of properties in residential sections were in Pennsylvania. During the spraying season, which terminated on June 28, some 300,000 feet of 1-inch high-pressure spray hose was used. As a general rule, from 3,000 to 3,500 feet constitutes the average length of hose line from any one sprayer; but in several instances much longer lines were laid out, 7,000 feet of hose being used from one sprayer.

The gypsy moth in New York City.--Recently two gypsy moth infestations were found in the Bronx. Work is being carried on by the Conservation Department of the State of New York, and a few additional infestations have been discovered. Scouting is being continued in the surrounding territory, and more extensive scouting and treatment in all of the infested area will be necessary later.

FOREST INSECTS

Another potential vector of the Dutch elm disease.--The introduced European elm bark beetle (Scolytus multistriatus Marsh.) has been considered as the most important probable insect vector of the Dutch elm disease in this country. It is very abundant and widespread in the infected area surrounding New York City. However, during the last few months a second potential vector, belonging to the same genus, has been taken at several points in the area. This has been identified by M. W. Blackman, Washington, D. C., as Scolytus sulcatus Lec. Specimens of this formerly very scarce species have been found in Chatham and Maplewood, N.J., Staten Island, N.Y., and Stamford, Conn.

Spraying for control of spruce budworm.--J. C. Evenden, of the Coeur d'Alene, Idaho, laboratory, reports that the Douglas fir stands around the dude ranches, summer homes, camp sites, resorts, etc., of the Cody Canyon, Shoshone National Forest, were again sprayed during June to prevent defoliation by Harmologa fumiferana Clem. This is the fifth year of this project and, although the feeding habits of the insect make it a difficult pest to control, the results have been sufficiently successful to preserve the valuable trees at stake. Annual treatments, which reduce the severity of the defoliation by some 50 to 65 percent, have been instrumental in keeping the trees sufficiently thrifty to resist the attacks of the Douglas fir beetle, an epidemic of which developed in the large areas of Douglas fir weakened by budworm defoliation. On some of the treated trees rather serious outbreaks of a spider mite (Oligonychus americanus Ewing) appeared for the first time this season. In the treatment of these areas an oil emulsion was added to the lead arsenate spray for the control of these mites.

Bark beetle control work effective.--T. T. Terrell, of the Coeur d'Alene, Idaho, laboratory, spent the month of June assisting officials of Yellowstone National Park in directing control measures against an outbreak of the mountain pine beetle (Dendroctonus monticolae Hopk.) in the white-bark pine stands of the Mount Washburn unit. Mr. Terrell reports that the small amount of control work conducted in this unit in the spring of 1933 successfully reduced the subsequent infestation, which is being treated at this time.

Selective control benefits pine-beetle parasites.--W. D. Bedard, of the Coeur d'Alene, Idaho, laboratory, states that although present methods of control successfully reduce the intensity of the mountain pine-beetle infestation, the potential power of increase is unchanged, as both the beneficial and destructive insects are destroyed in relatively equal numbers. Therefore, during the 1933 spring-control project on the Coeur d'Alene National Forest a departure from previous methods was adopted and all infested trees containing 30 percent or more parasites were left untreated in the Steamboat Creek drainage. A recent examination of trees infested in 1933 in this experimental area shows that the parasites have almost doubled in abundance during the past year. At the time this experiment was instituted in 1933 the average parasitization for the entire Steamboat Creek infestation was 30.0 percent, while at the present time it averages 55.3 percent.

Pine beetle develops much earlier than last year.--W. J. Buckhorn, of the Portland, Oreg., laboratory, reports that a comparison of the brood development of the western pine beetle (Dendroctonus brevicornis Lec.) in the spring of 1934 with that of 1933 shows the striking difference that can occur between two seasons as a result of varying climatic conditions. The spring of 1933 was unusually cold and wet; that of 1934, exceptionally warm and early. The difference in brood development, as shown by caging records on the Ochoco National Forest in central Oregon, was as follows:

Emergence	1933	1934	Difference
			Days
First	May 27	April 10	47
Peak	July 9	May 26	48
95 percent complete	Aug. 5	June 25	41
Average	....	....	45

Thus the season 1934 is on the average about 45 days earlier than 1933, as shown by beetle emergence records. Phenological records show a similar advancement of about 7 weeks in plant growth.

Notes on Rogas unicolor Nees.--P. B. Dowden, of the Melrose Highlands, Mass., laboratory, reports that in the summer of 1933 one lot of small larvae of the satin moth (Stilpnotia salicis L.) were attacked by mated females of Rogas unicolor and another lot were attacked by unmated females. There was a heavy winter mortality of the hibernating larvae and only 20 adult parasites, all females, were obtained this summer from the first lot of parasitized larvae and 8 from the second lot. A few males occur in the field in Europe, but it is not known whether they are the progeny of mated or unmated females. This year 3,522 female and 34 male adults have issued from cocoons collected by W. F. Sellers at Budapest, Hungary. Rogas unicolor was first received and liberated by the Melrose Highlands laboratory in 1932. It has been liberated in New England and in the State of Washington.

Further introductions of parasites.--In June adults of several species of parasites that issued from material received from Mr. Sellers were sent out from the Melrose Highlands laboratory for liberation in the field. Adults of Copidosoma geniculatum (Dalm.) Mayr., Tetrastichus turionum Hart., and Actia nudibasis Stein were liberated in infestations of the European pine shoot moth (Rhyacionia buoliana Schiff.) in New England and New York. Angitia laricinella Strand, and Bassus pumilus Ratz. were put out in other New England and New York areas where the larch case bearer (Coleophora laricella Hbn.) is present, and adults of Meteorus versicolor Wesm. and Rogas unicolor were sent to the State of Washington for liberation in satin moth infestations. The two last-mentioned species were also liberated in New England.

Parasite of the imported willow leaf beetle.--R. T. Webber, of the Melrose Highlands laboratory, has been making some observations on the biology of Schizonotus sieboldi Ratz., a European parasite, probably introduced with its host, the European willow leaf beetle (Plagiodera versicolora Laich.). He finds that the parasite develops rapidly. The egg is laid on the pupa of the beetle, rarely on the prepupa, and hatches in a day or two. The young larva seeks the venter of the abdomen, where it develops as an external parasite. Only about 4 days are spent in the larval, about 1 day in the prepupal, and from 6 to 8 days in the pupal stage.

Blue stain hastens death of beetle-attacked pines.--R. A. St. George, of the Asheville, N.C., laboratory, reports that evidence obtained this spring substantiates the view that the blue stain fungus (Ceratostomella pini), an associate of the southern pine beetle, assumes an important role in bringing about conditions favorable for the sudden death of beetle-attacked pines. It was noted in many instances that trees infected by blue stain contained egg tunnels of the beetle, but all adults and eggs had been killed by subzero temperatures of the past winter. When found this spring the foliage of such trees was fading, indicating that, although the beetles mechanically injured the trees while extending their egg tunnels and played an important part in inoculating the trees with spores of fungus they carried with them, it was not until the blue stain penetrated the wood that the trees began to fade rapidly. The importance of the fungus is still further emphasized when it is realized that trees attacked by both beetle and fungus exhibit a change in foliage in from 20 to 30 days, whereas healthy trees girdled mechanically do not fade for a period of 6 months or longer. These findings are in accordance with those of R. M. Nelson and J. A. Beal, who in 1929 succeeded in killing healthy pines that had been caged from insect attack by making inoculations with the *C. pini* fungus.

FOREIGN PARASITE INTRODUCTION

Elm leaf beetle parasites.--A shipment of 7,500 field-collected eggs of the Japanese elm leaf beetle (*Galerucella maculicollis* Motsch.) was recently received from R. W. Burrell of the Yokohama, Japan, laboratory. The introduction of the egg parasite of this beetle is in cooperation with the California Agricultural Experiment Station. H. S. Smith's recent report on this material records the emergence of 3,600 *Tetrastichus* sp. that are apparently different from the species attacking the leaf beetle in Europe. Laboratory experiments have shown that this parasite will reproduce readily upon *Galerucella luteola* Mull. Colonies have been liberated in three localities in California. This parasite is evidently considerably more effective in Japan than is *Tetrastichus xanthomelaenae* Rond. in Europe; and in view of the consistent failure of the latter to become established in the United States, it is hoped that better results will be obtained with the Japanese species. Recent shipments from H. L. Parker, of the Hyeres, France, laboratory, comprise: 520 *Lebia scapularis* Dej., a carabeid predator of the elm leaf beetle, and 1,500 *Erynnia nitida* R.D., a tachinid parasite of the same insect.

Spruce sawfly parasites.--In cooperation with the Canadian Department of Agriculture, surveys are being made in Japan and Korea of the natural enemies of sawflies closely related to the spruce sawfly (*Neodiprion abietis* Harr.). Several species of Cleptes are very abundant in Korea and are being studied with a view to importation.

PLANT DISEASE ERADICATION

Barberry eradication in North Central States.--Three hundred and seventy-one locally employed laborers and 71 crew foremen are at work on barberry eradication in the 13 North Central States that comprise the eradication area. Efforts are being concentrated in territory where the barberry population is greatest, that is, in Wisconsin, Iowa, Michigan, Ohio, and Illinois. Removal of bushes in these States will not only give local rust control but will afford protection in the entire spring wheat area against early infection of grain from wind-blown spores. Rust spreads from barberry bushes have been held in check by the dry weather.

Not much rust in Southern States.--Rust on grain in the southern Mississippi Valley in sections where harvest has taken place or will soon be under way has apparently caused little damage, either in reduced yield or shriveled grain. In much of the southern grain area dry weather held the fungus in check. Certain of the southern rusted areas are of unusual interest this year, however, as possible sources of wind-blown inoculum to the grain fields of the North, where in certain sections the crop will mature later than would normally be the case.

Airplane used to trap rust spores.--On May 28 and 30 spore traps exposed from airplanes over the territory north of Dallas, Tex., caught an abundance of rust spores at all elevations up to 4,000 feet, indicating that inoculum was being released from fields into the prevailing southerly winds. This particular spore stage can cause direct infection of grain without the aid of the barberry. Should the recent rains in the spring wheat area bring on a fair crop of late grain, there is the possibility of rust damage resulting directly from wind-blown spores from the South. Normally, provided early infection of grain in the spring wheat area is prevented by removal of barberry bushes, the crop matures in time to avoid serious damage from spore showers originating from rusted grain in the southern Mississippi Valley.

Blister rust control.--Owing to unusual climatic conditions, the field work in the western white pine region was begun almost a month earlier than is customary. Work is now in progress in 31 States and in national forests, national parks, and Indian reservations. The preeradication surveys of control areas made during the fall and winter months were of great value in organizing and starting the various projects for eradication of Ribes. At the present time approximately 16,800 men are engaged in blister rust control work in the United States. Of these, 12,900 are working in the western white pine and sugar pine forests, and the remaining 3,900 in the northern white pine belt of the Eastern States. This work is conducted with PWA and State funds, supplemented by personnel assigned to it from ECW and ERA activities. Thus far about 21,000,000 Ribes bushes have been destroyed on 259,000 acres of land, utilizing 111,000 man-days of labor. In the performance of this work the Civilian Conservation Corps contributed about 10,400 men from 127 camps and these men destroyed 7,476,854 Ribes plants on 98,105 acres of land. It is estimated that, because of the earlier start and the availability of ECW personnel and Public Works funds, about twice as much work will be done this year as last.

Citrus canker eradication.--In June, 11 sweet orange trees on the outskirts of the town of New Iberia, La., were found infected with citrus canker and were destroyed. Five properties were involved in the recent outbreak. In addition to the 11 infected trees destroyed, it was necessary as a precaution to destroy 23 other trees, making a total of 34 trees destroyed in this locality because of canker. The 34 trees were located on 16 different properties within a radius of two blocks of what is believed to be the source of infection. It was in the parish of New Iberia that citrus canker was found 6 or 7 years ago. In Texas one infection reported was in an orchard near Friendswood, Brazoria County; another in an orchard north of League City, Galveston County. The first involved one orange and one lemon tree, which, with a number of adjoining trees, were destroyed and the surrounding property was sprayed with bichloride solution. The second infection was on one grapefruit tree located among some satsumas, and this infected tree was also destroyed. Two recurrent infections of citrus canker, consisting of 3 infected trees, were found in Texas during June and were destroyed.

CEREAL AND FORAGE INSECTS

Corn earworm and tobacco budworm on flax in South Carolina.--The appearance in May of larvae of Heliothis obsoleta Fab. and H. virescens Fab. in association on flax grown near Estill, S.C., where considerable injury has resulted from larval attack, has raised a question as to how important these species are likely to be as enemies of flax, should this crop be grown extensively in the South. Although the extent of damage depends largely on the stage of growth in which the flax is attacked by these insects, a survey was made to determine the number of larvae that could destroy or cause serious injury to the crop.

Parasite of clover seed chalcid is hardy.--An observation of considerable importance was made by L. L. Stitt, Tempe, Ariz., on the parasite Liodontomerus perplexus Gahan. An overwintering larva of this species, dissected from an alfalfa seed on January 28, 1933, and retained in a wax cell, emerged on May 16, 1934, as a normal adult. This is a record of 16 months that this larva remained in the larval stage without undergoing any change. The record not only gives us an insight into the vitality of this insect but also clearly demonstrates the adaptability of the cage type in the handling of this parasite.

COTTON INSECTS

Boll weevil survival.--The emergence of boll weevils from the hibernation cages at Tallulah, La., was 7.51 percent, as compared to 0.15 percent in 1933 and 18.39 percent in 1932, the last being the highest ever recorded. The survival this year was second highest on record. It was also unusually high in Texas and Oklahoma, the Atlantic seaboard being the only section reporting low survival. As a result of the high survival and a late crop, there has been considerable damage to the early squares, particularly in the Mississippi Delta where planters became alarmed in June and requested advice on control from the Department. Considerable dusting has been necessary and at least three companies were operating airplanes. The hot dry weather during the last 2 weeks of June checked weevil development in parts of the Cotton Belt and conditions were much better on July 1 than they were at the beginning of June.

Boll weevil hibernation and survival studies in Oklahoma.--H. C. Young reports weevil activity as observed in the series of standard size (4 feet by 4 feet by 4 feet) hibernation cages at Eufaula, Okla., was approximately 20 times as great between April 1 and May 7, 1934, as during the same period in 1933.

Winter survival of boll weevils taken from gin trash.--At Eufaula, Okla., on November 14, 1933, H. C. Young collected 4,000 boll weevils from gin trash and installed them in 8 hibernation cages. These weevils had been thrown out by a Hartt cleaner from cotton picked on November 9 to 13 and ginned on November 14. At the same time 6 cages were installed with boll weevils collected in the field on November 9 and 10. The emergence from the gin-trash weevils prior to July 1, 1934, was 1.05 percent, and from the field-collected weevils was 0.70 percent. This is quite surprising, as it was thought that the weevils passing through the gin alive would be so battered and broken that few of them would survive.

Chemotropic studies.--Studies conducted at Tallulah, La., for a number of years, using various substances in connection with tanglefoot screens in an attempt to attract the boll weevils emerging from hibernation, were discontinued June 1. A great deal of chemical research was done on isolating the constituents of the cotton plant which attract the weevils. These and other chemicals that seemed most promising under laboratory conditions were tested in the field but have not proved sufficiently attractive to weevils to recommend their use for control.

Cotton leaf worm outbreak.--The local outbreak of leaf worms reported by R. L. McGarr on May 24 in the vicinity of Port Lavaca, Tex., has not spread very much. Adults of the third generation were due to appear during the first 10 days of July, and it will probably be necessary to dust for control of the next generation. The species was also reported by L. F. Curl on June 27, at Chapman Field, Miami, Fla.

Notes on miscellaneous cotton insects.--T. P. Cassidy, Tucson, Ariz., says, "On June 28 a report was received that serious damage was being caused to cotton at Sacaton, Ariz., by a cotton stainer, Dysdercus sp. This report was investigated on June 29 and many Dysdercus were found concentrated on about 1 acre of cotton adjoining an alfalfa field. The infestation appeared to be an influx from the outside, but the source could not be located. According to records made by C. J. King, all of the bottom bolls were punctured by these insects, therefore an attempt was made to control the infestation by the use of sulphur and derris. Three-fourths of an acre was treated with a 4 percent rotenone-derris powder on June 30. This treatment will be repeated July 5 and 9."

Corn root aphid on cotton.--C. F. Rainwater reports that the root aphid has caused considerable damage in several counties in eastern South Carolina by killing small cotton seedlings and stunting the growth of larger plants.

The cotton flea hopper.--The heavy infestation of flea hopper reported by K. P. Ewing in Calhoun and Victoria Counties, Tex., during May, decreased in intensity during June.

The pink bollworm in Texas.--The infestation in the Big Bend area of Texas, as reported by A. J. Chapman, Presidio, Tex., is light and spotted, which is normal for this season of the year. Bolls are not yet large enough to be infested and examinations have been limited to squares and blooms. Examinations by C. S. Rude in the Laguna district of Mexico show the infestation to be unusually high for this time of the year. On some plantations large areas of volunteer cotton are being cultivated. This cotton fruits much earlier than planted cotton and provides breeding places for the early moths. In fields of volunteer cotton the plants averaged 2.4 bolls per plant, about 50 percent of which were infested.

Toxicity of derris, cube, barbasco, and pyrethrum powders to first-instar pink bollworms.--A. J. Chapman, Presidio, reports on a series of laboratory tests designed to show the relative effect of several contact insecticides on first-instar larvae of the pink bollworm. Thirteen powdered insecticides representing different brands of derris, pyrethrum, barbasco, and cube--the products of eight manufacturers--were used. Each of the 13 products was tested in a 1 - 1 mixture with flour. The three pyrethrums did not kill the larvae as readily as did the other materials, but appeared to be very irritating and may show better results under field conditions. Nine of the other ten materials produced mortality of 91.9 percent or higher in from 1½ to 2½ hours. Definite conclusions cannot be drawn from these tests as to the relative merits of the various materials containing rotenone. All of them are apparently toxic against the first-instar pink bollworm. Materials labeled from 1 to 7 percent rotenone were equally effective in the 1 - 1 mixture with flour.

PINK BOLLWORM

The trap-plot cotton in the Big Bend area of Texas made excellent progress throughout June. By the end of the month specimens of P. gossypiella had been found in all but three of the plots in the Presidio section. The first specimens were taken in the two Castolon plots on May 25, in the stub plot on May 28, and in the Presidio plots on June 2. In the Presidio plots there was a gradual increase in the infestation until June 21, after which it began to decrease slightly. In the two Castolon plots the peak of infestation was reached during the week of June 9, and it decreased sharply toward the end of the month. The peak of infestation in the stub plot was reached on June 7, and throughout the remainder of the month there was a considerable decrease both in the number of blooms produced and the number of worms found. Two plots on one farm in the Presidio section have shown a very high infestation, over half the total number of worms found being from these two plots. The owner expressed the opinion that this is due to delayed emergence of moths in the vicinity of these plots because of the especially dry soil. The average percentage of infestation for the 25 plots in the Presidio section for the month of June was 3.44, for the stub plot 7.46, and for the two Castolon plots 0.79.

The field cotton in the Big Bend is now producing quite a few blooms. That in the Castolon section is only about half as large as the trap cotton, but in the Presidio section, because of adverse weather conditions in the early spring, we were not able to get the trap cotton to grow as fast as we had hoped; consequently, there is not so much difference in the size of the plot and field cotton. During the month specimens were found in 10 fields adjacent to the plot cotton in the Presidio section, the average infestation being approximately 0.3 percent. No specimens have yet been found in the field adjacent to the stub plot or in the fields in the Castolon section. No sign of the pink bollworm was found in the two trap plots in the noncotton zone in southern Georgia, or in the volunteer cotton that had come up over the zone.

The inspection of blooms from the cotton at Chapman Field has been continued. Several months ago some of the cotton was moved into a screened house so that only one plat was left outside. On June 19 a pink bollworm larva was found in a bloom from the outside plat, and by the end of the month 7 additional larvae had been found. It will be recalled that on August 23, 1933, 2 larvae were found in hibiscus blooms. An intensive examination of such blooms was immediately made and incidental examinations have been continued up to the present time without finding any more specimens. The last finding from cotton blooms had been in March 1933, when the infestation was attributed to overwintering larvae in the soil. The latest findings, however, indicate that infestation is now coming from some outside source, and efforts are being made to locate it.

TRUCK CROP AND GARDEN INSECTS

Standard insecticides show specific toxicity to certain insects.--C. F. Stahl, Sanford, Fla., reports as follows: "To date our results indicate that under Florida conditions derris is probably not a good insecticide for the control of the celery leaf tier or the southern armyworm but is very effective against the imported cabbage worm. Pyrethrum is an excellent insecticide for the celery leaf tier but is probably less efficient than derris for the cabbage worm, and of no particular value for the large armyworms. Cryolite has proved of no value as a spray for the celery leaf tier and its value as a dust is doubtful. For the cabbage worm it is apparently much less effective than derris, but it appears to be quite effective for the southern armyworm."

Toxicity of nonarsenicals to cabbage worms on spring cabbage in South.--W. J. Reid, of the Charleston, S.C., laboratory, reports: "Satisfactory control of the three most common species of cabbage worms of the Charleston area, the cabbage looper, the diamond-back moth, and the imported cabbage worm, was obtained throughout a period of heavy infestation from the use of only two applications of dust mixtures of derris root powder and clay containing from 1.5 percent to as low as 0.5 percent rotenone. The arsenicals used in this experiment--calcium arsenate, magnesium arsenate, and paris green--did not prove to be as toxic as derris and pyrethrum powders."

Factors affecting insecticidal residues on cabbage.--W. J. Reid, Charleston, S.C., reports that insecticides producing harmful residues should not be applied on cabbage within 40 days of harvest. Strong evidence was obtained that the factor determining residual hazard is not weather, as has been supposed, but plant development. It therefore seems safe to advise that arsenicals can be used on cabbage until after the head begins to form. The results of these experiments indicate that the arsenical used makes but little difference in the amount of residue deposited. Magnesium arsenate, calcium arsenate, and paris green were all used in the experiments, yet, under similar conditions almost exactly the same residue was deposited, regardless of the material used.

Beet leafhopper damage very slight in Sacramento Valley.--W. C. Cook, of the Modesto, Calif., laboratory, reports that most of the sugar beet fields in the Sacramento Valley are free from curly-top, and that only a few fields will be noticeably damaged by this disease in 1934. This valley is the only sugar beet area west of the Rocky Mountains that is not suffering moderate-to-severe curly-top damage this summer. Spraying the wild host plants in the breeding area north of Pacheco Pass killed approximately 90 percent of the overwintering female Eutettix tenellus Bak. that entered that area. It is estimated that but for these spraying operations, at least four times as many leafhoppers would have bred in the spring of 1934, and that, on an average, curly-top would have damaged the sugar beet fields of the Sacramento Valley at least 10 percent.

Clean-up of nightshade effective in controlling pepper weevil.--R. E. Campbell and G. E. Washburn, of the Alhambra, Calif., laboratory, report that although the pepper weevil had made its appearance in a Bell pepper field at San Juan Capistrano, no weevil infestation has been observed in the Huntington Beach section, where the nightshade was cleaned up last winter.

Plowing under of trap crops aids in pea weevil control.--T. A. Brindley, of the Moscow, Idaho, laboratory, reports that promising results were obtained in plowing under pea field borders utilized as trap crops, as a measure of control for the pea weevil. These borders were planted approximately 4 weeks earlier than the main crop, and the blooms attracted and concentrated the pea weevil adults on the border. At the end of June, from collections made in these cages after 5 weeks, it was shown that only 1.7 percent of the original weevil population had made its way to the surface of the soil.

Burning of borders not effective against pea weevils, tests indicate.--Mr. Brindley also reports that the first experimental tests with a specially devised burner directed against adults of the pea weevil in early planted borders were not effective.

Pea weevil survives long periods of submergence in water at low temperatures.--F. G. Hinman, of the Corvallis, Oreg., laboratory, reports as follows: "The mortality of the submerged weevils varied directly with the temperature. * * * The fact that the pea weevil can survive under water for a considerable period of time at low temperatures helps to explain why it has been found successfully hibernating in debris on the ground near Moscow, Idaho. Under such conditions the insect would be in water from melting snow for days and sometimes for weeks at a time."

Red clover is no aid in wireworm control.--As a result of extensive field-plot studies, F. H. Shirck, of the Parma, Idaho, sublaboratory, reports that red clover appears to merit disqualification as a field crop crop where wireworms are to be dealt with.

Naphthalene kills millipedes, tests indicate.--R. S. Lehman, of the Walla Walla, Wash., laboratory, reports that in one field investigated millipedes were damaging winter onions. The onions were attacked when quite small and a considerable portion of the onions were destroyed. The millipede population was estimated at 1,120 per cubic foot. A total of 500 square feet of the field was spaded by hand and crude napthalene was applied at the rate of 800 pounds per acre. The results showed that the napthalene was quite effective in killing the millipedes at depths of 5 or 6 inches.

Heavy rainfall in Fairfax, S.C., area fails to reduce sand wireworm populations.--J. N. Tenhet, Fairfax, S.C., has shown that, regardless of the popular belief to the contrary, the sand wireworm (Horistonotus uhlerii Horn), is able to survive excessive moisture during periods of high temperature.

Wireworm injury to potatoes.--As a result of observations during the Irish potato harvest, K. L. Cockerham, of the Biloxi, Miss., laboratory, reached the following conclusions regarding the gulf wireworm (Heteroderes laurentii Guer.): That wireworm injury is more severe on old, regularly cultivated lands that have been cropped to Irish potatoes or corn; less severe on turf land that has lain idle for 4 or 5 years; least severe in newly cleared ground; and less severe in the heavier, clay soils than in sandy soils.

Cigarette beetle and tobacco moth reduced by low winter temperatures.--W. D. Reed, A. W. Morrill, Jr., and E. M. Livingstone, Richmond, Va., while collecting insects in 10 suction light traps placed in a warehouse of 1,105,000 cubic feet, discovered that the low winter temperatures in the area had materially reduced the number of overwintering larvae of the cigarette beetle, but that less reduction was effected among hibernating tobacco moths (*Ephestia elutella* Hbn.).

INSECTS AFFECTING MAN AND ANIMALS

Screw worm situation in Georgia and Florida.--R. A. Roberts reports that the screw worm-infested counties of both Georgia and Florida are taking steps to organize campaigns for the destruction of carcasses. Burning of the carcasses, rather than burial, is recommended. In Georgia the limits of last season's outbreak have been extended somewhat to the north and east. In Florida, from Baker to Lafayette Counties, from 100 to 300 screw worm cases per county have occurred. The southern limit of the outbreak has not been determined, but it is known to extend south of Gainesville and cases were reported from as far south as Dade County.

Coachella, Calif., laboratory closed.--Owing to curtailment in the appropriation, the eye gnat laboratory at Coachella, Calif., was closed early in June. R. W. Burgess, who was in charge of the laboratory, has been transferred to Uvalde, Tex., where he will continue his work on eye gnats under the direction, as formerly, of D. C. Parman. The residents of Coachella Valley were sufficiently impressed by the results of the experimental trapping of eye gnats to arrange for the continuation of the trapping operations, especially near the schools. G. O. Robertson, who has been associated with Mr. Burgess as agent of the Bureau for the past 4 years, is to be employed by the local Abatement Association to look after this work.

Cochliomyia americana found in nasal passages of sheep.--An interesting discovery relative to infestation of animals by larvae of C. americana Cushing and Patton was recently made by O. G. Babcock, of the Sonora, Tex., laboratory. While examining the nasal cavities of a sheep for larvae of the sheep botfly (Oestrus ovis L.), two third-stage dipterous larvae were found which were identified by Mr. Cushing as C. americana. One specimen was subsequently reared to the adult stage and produced a female C. americana. There were no infested lesions on the animals from which the larvae could have migrated. Infestations of the nasopharyngeal passages of man by larvae presumably of this species are of common occurrence in the tropics, but it is believed this is the first record of a similar infestation in an animal. Mr. Cushing reports that his suspicions that C. americana is a primary myiasis-producing fly which may not breed in carcasses have been partly confirmed by his inability to induce the species to complete its development on meat. It was found to be present in most cases of myiasis occurring in animals this spring and summer at Sonora.

Screw worm campaign in Jackson County, Tex.--Acting upon information and advice furnished by E. W. Laake, 22 ranch owners and tenants have formed an organization for trapping screw worms and other blowflies over an area of about 45 sections located in the vicinity of Olivia, in Calhoun County, and La Ward, in Jackson County, Tex.

Gastrophilus inermis Brauer recorded from North America.--On May 21, while collecting larvae of Gastrophilus spp. from stomachs and rectums of horses slaughtered at Rockford, Ill., E. F. Knipling noticed in the rectum of one horse two larvae that appeared different from G. haemorrhoidalis L., G. intestinalis DeG., or G. nasalis L. The two specimens were kept separate from other larvae collected. They were well advanced in the last instar and pupated on May 22 and 24. Males emerged from each on June 12 and 13. The larvae were determined as G. inermis, and determinations were later checked with the adult specimens. This is apparently the first record of this species being taken in this country.

Mosquito control in Pacific Northwest.--Two rather large operations for control of mosquitoes breeding in snow water have been carried on in mountainous areas of Oregon and Washington during the spring and early summer by H. H. Stage, of the Portland, Oreg., laboratory, in cooperation with the ECW and the Forest Service. These areas are located in the Mt. Hood and Columbia National Forest, respectively, where CCC camps are also located. The work consists largely of applying oil to accumulations of water from melting snow where there is little or no drainage. CCC labor was used for this work. The number of mosquitoes in the area has been markedly reduced. Under Mr. Stage's direction approximately 2,500 of the mosquito-destroying top minnow (*Gambusia patruelis* Baird and Girard) have recently been transported from northern California to Oregon and Washington and planted in locations favorable for breeding. Young fish have already been observed in these breeding places.

FOREIGN PLANT QUARANTINES

Recent entomological interceptions of interest.--On October 9, 1933, a living larva of the papaya fruit fly (*Toxotrypana curvicauda* Gerst.) was taken at Baltimore, Md., in a papaya (*Carica papaya*) in ship's quarters from Panama. This represents the first definite record in our files of this fruit fly being intercepted from Panama. Adults of two flea beetles (*Phyllotreta atra* (Fab.) and *P. nemorum* (L.)) were intercepted at San Francisco in packing around rose plants in the mail from Czechoslovakia. A thrips, *Adraneothrips alternatus* Hood, was intercepted at Philadelphia on banana debris in cargo from Guatemala. A cushion scale, *Icerya seychellarum* (Westw.), was intercepted at New Orleans on a leaf of croton (*Codiaeum* sp.) in ship's quarters from the Philippines. Another scale, *Pseudococcus boninsis* Kuw., was intercepted at Hidalgo, Tex., in a sugarcane stalk in baggage from Mexico. Adults of the leaf beetle *Saulaspis graphica* Germ., and the darkling beetle *Salax lacordairei* Guer. were intercepted at New York in excelsior packing around grapes in cargo from Argentina. The scale insect *Aspidiotus degeneratus* Leon. was intercepted at San Francisco on *Camellia japonica* in cargo from Japan. A living adult of the leaf beetle *Cheirispa distincta* Baly was taken at Mobile, Ala., on banana debris in cargo from Panama. A living adult of the square-necked grain beetle (*Silvanus gemellatus* Duv.) was intercepted at New Orleans on a pineapple in cargo from Cuba. Living larvae, pupae, and adults of the West Indian sweetpotato weevil (*Euscepes batatae* Waterh.) were intercepted at New York in sweetpotatoes in baggage from St. Lucia, British West Indies.

Recent pathological interceptions of interest.--Our first interception of a *Cercospora* sp. leaf spot on ivy was made at Seattle on ivy mailed from Denmark. Diseased Bell peppers from the Dominican Republic were intercepted at Houston and found to be infected with *Colletotrichum nigrum*, *Phoma destructiva*, and *Cercospora* sp., our first interception of any of these diseases from that country. Several interceptions of *Septoria citri* have been made in recent months on citrus fruits from Mediterranean countries but the first one from Australia was made at Baltimore, the host being lemon. Our first interception of *Phoma destructiva* from Panama was made at Baltimore, on a tomato. A New York inspector found mosaic on peony from Germany, our first interception of mosaic on this host. Oranges from Palestine intercepted at Philadelphia were infected with Oospora citri-auranti, our first interception of this rot from Palestine. A Philadelphia inspector made our first interception of Colletotrichum nigrum from Java, the host being red pepper.

Mangoes carry fruit fly larvae.--V. J. Shiner reports this occurrence from Laredo, Tex.: "Mr. Vinzant states that on May 19, 1934, while inspecting traffic on the footbridge, he observed an old lady and a 4-year-old boy coming from Mexico with several sacks of groceries and vegetables. Upon examination he found a half-consumed mango in a sack of tomatoes. Two larvae were found on the tomatoes and two in the partially eaten mango." One of the larvae turned out to be the orange maggot (Anastrepha ludens Loew).

What "infested" may mean.--The following analysis of the larval population in an intercepted shipment gives a realistic picture of the actual number of insects present: A lot of 60 loquats taken from a passenger's baggage at Providence, R.I., was found to contain 189 larvae of the Mediterranean fruit fly (Ceratitis capitata Wied.).

Passenger brings infested olives.--On January 18, 1933, eight pupae of the olive fruit fly (Dacus oleae Rossi) were intercepted at Baltimore in a quart of partially dried olives in baggage from Italy. In at least 75 percent of the olives infestation was evidenced by exit holes and empty pupal cases.

Always the unexpected.--An egg mass of the satin moth (Stilpnotia salicis L.) was taken from a Seattle Times wrapper at 3rd Avenue and Pike Streets, Seattle, on June 8, by M. J. Forsell, an inspector at the port of Seattle.

Inspectors find new pests in sweetpotatoes.--Weevils found at New York in sweetpotatoes from Mexico on April 4, 1934, are reported by a representative of the Bureau of Entomology and Plant Quarantine to be Cossoninae of an unknown genus but near Ithaura and Dioptrophorus. No record could be found of their habits. A similar finding of larvae and pupae in sweetpotatoes from Brazil on May 23, 1934, is ascribed to the Curculionidae with the genus undetermined and with a remark to the effect that it is a quite unfamiliar parasite on sweetpotatoes.

Plants found concealed in printed matter.--Since January 1, 1934, Messrs. Schram and Schroeder, two foreign segregators at Chicago, have made eight interceptions of plant material concealed in packages of newspapers and printed matter. Not only is this important from the standpoint of the actual number of interceptions so made, but it increases their vigilance over parcels passing through the distribution center for distant States where no inspectors are stationed.

DOMESTIC PLANT QUARANTINES

Transit inspection.--Sixty-seven Japanese beetles were taken by transit inspectors at Chicago from refrigerator cars at the Pennsylvania Railway team-track yards on July 11 and 12. Fifty-six of the beetles were alive. The cars contained green beans and lima beans shipped from points in New Jersey, and had been partly unloaded when the beetles were discovered. The hampers available at commission merchant houses were very carefully inspected. After the cars were emptied all were cleaned, and all save one were fumigated. It is understood that loading of refrigerator cars with products consigned to nonregulated areas is now under safeguard during the time of day when the beetles are flying. A daily average of 84,325 sacks of parcel post mail arrives at the Chicago railway mail terminal, in the new Post Office Building, according to the annual report of the transit inspector in charge.

Black-stem rust of grains.--The inspection of premises of applicants desiring to ship immune species of barberry to the 13 "protected" States was begun early in July.

White-pine blister rust.--The State Entomologist of Kentucky reports the issuance of a new regulation designating Menifee, Morgan, Powell, and Wolfe Counties in that State as white-pine growing districts, and authorizing agents of the Commissioner of Agriculture to remove wild currant and gooseberry plants in those counties when such bushes are found "growing within 1,500 feet of valuable pine forests." The order also covers the destruction of cultivated bushes "located at abandoned or unoccupied houses." Regulations concerning the white-pine blister rust were also recently placed by the States of Virginia and West Virginia. The Virginia quarantine prohibits the growing of currants and gooseberries in an area of 54 counties, and provides authority for the destruction of Ribes on any premises, except that the destruction of cultivated species is limited to those growing within 1,500 feet of white-pine stands. In West Virginia, the Forest Service nursery at Parsons is brought under protection by the establishment of surrounding quarantine zones in which the growing or possession of Ribes nigrum and other species of currant and gooseberry plants is prohibited. In the New England States nurserymen who hold pine-shipping permits are submitting to this office, through the gypsy moth inspection organization, a report of each shipment of five-leafed pines made from the nursery. Lists of such shipments have recently been sent to officials of the destination States.

CONTROL INVESTIGATIONS

Dyar's rule doubted.--F. L. Campbell, Takoma Park, Md., at the invitation of J. C. Gaines, College Station, Tex., contributed a section on Dyar's rule to his manuscript on the number of instars of Heliothis obsoleta Fab. It is shown graphically that Dyar's rule is of doubtful value for corroboration of the observed number of instars, because it may indicate a missing instar when it is quite certain from other evidence that no instar was overlooked.

Poison for mosquito larvae.--D. E. Fink, Takoma Park, finds that none of nine substitution products of phenothiazine is as toxic to mosquito larvae as is phenothiazine itself. Methyl phenothiazine, the simplest substitution product, most nearly approached phenothiazine in toxicity.

BEE CULTURE

Studies codling moth poisons as affecting bees.--During the latter part of June, Geo. E. Marvin, Somerset, Md., began a new phase of his work on the PWA project of the Division of Fruit and Shade Tree Insects, dealing with codling moth control. This is a study of the effect on honeybees and other pollinating insects of the various organic insecticides applied to fruit trees. Front Royal, Va., was chosen as the headquarters for the field work because large numbers of bees are kept in that vicinity, as it is not only the center of an apple-growing district but also has an abundance of blue thistle and sweetclover to afford nectar for the bees when the fruit trees are not in bloom.

Clarification of beeswax.--Mr. Marvin reports that in a study made on the clarification of beeswax, of the five materials used in the process (Bentonite, Volclay, Western Clay, Klearite, and Animal Charcoal), Western Clay was found to be the best for the purpose of absorbing and holding the dark-colored material found in crude beeswax taken from brood combs. When the mixture was filtered a clear, light-colored wax was produced.

A Bacillus reared.--C. E. Burnside, Somerset, reports that while using a culture medium containing sterile brood filtrate to which sterile honey was added, an organism which morphologically and culturally compares closely with *Bacillus lanceolatus* Maasen was isolated on three occasions from samples of parafoulbrood. *B. lanceolatus* was first isolated and studied in Europe. There is only one previous record of its having been isolated in America, that by A. P. Sturtevant, Laramie, Wyo.

California buckeye kills bees.--E. L. Sechrist, who has been in charge of the Pacific States Bee Culture Field Laboratory, Davis, Calif., reported that, at the request of a group of beekeepers in the San Joaquin Valley, G. H. Vansell, who has done considerable work on plants poisonous to honeybees, made a trip into the area from which great mortality of adult bees had been reported this summer. He traced the cause of death to the California buckeye, which seemed to be unusually deadly to bees this season, which was a very dry one, just the kind of year when bees suffer most from buckeye poisoning. The most severely affected apiaries were at about the midpoint of the buckeye range and bees could feed on buckeye by first going down to the early blooming trees below them and then following the blossoming trees on up to the mountain heights. In this area some apiaries had been rendered entirely worthless. In one county several thousand colonies were poisoned this year by buckeye.

Bees in transit.--Under a cooperative agreement with the Railway Express Agency, Warren Whitcomb, Jr., in charge of the Southern States Bee Culture Field Laboratory, has been able to study en route the conditions to which package bees are subjected in transit. He reports that the first experimental shipment was made on June 11 to 19 from Natchez, Miss., to Lansing, Mich., and thence to Alba, Mich., where the packages were introduced into colonies. One package in the crate died. Several leads obtained in this shipment will be further tested in subsequent shipments.

Hold suspected bees 96 hours.--A. P. Sturtevant, in charge of the Intermountain Bee Culture Field Laboratory, Laramie, Wyo., reports: "A previously given recommendation, that packages of bees from localities where there is suspicion of American foulbrood should be held for at least 96 hours before being placed in combs, was tested with four colonies during the past winter. The colonies were made with packages from diseased colonies and held 96 hours before being placed last fall in drawn combs containing honey. No disease has yet appeared in these colonies."

IDENTIFICATION AND CLASSIFICATION OF INSECTS

Coleopterous larvae received from Denmark.--A. G. Boving has recently received two lots of identified coleopterous larvae from Denmark, one, including 14 vials, coming from S. P. Kryger, the other, comprising 11 vials, from E. Rosenberg. Doctor Boving has translated from the Danish the comprehensive collection notes accompanying the specimens and has added the material to the collections in the National Museum.

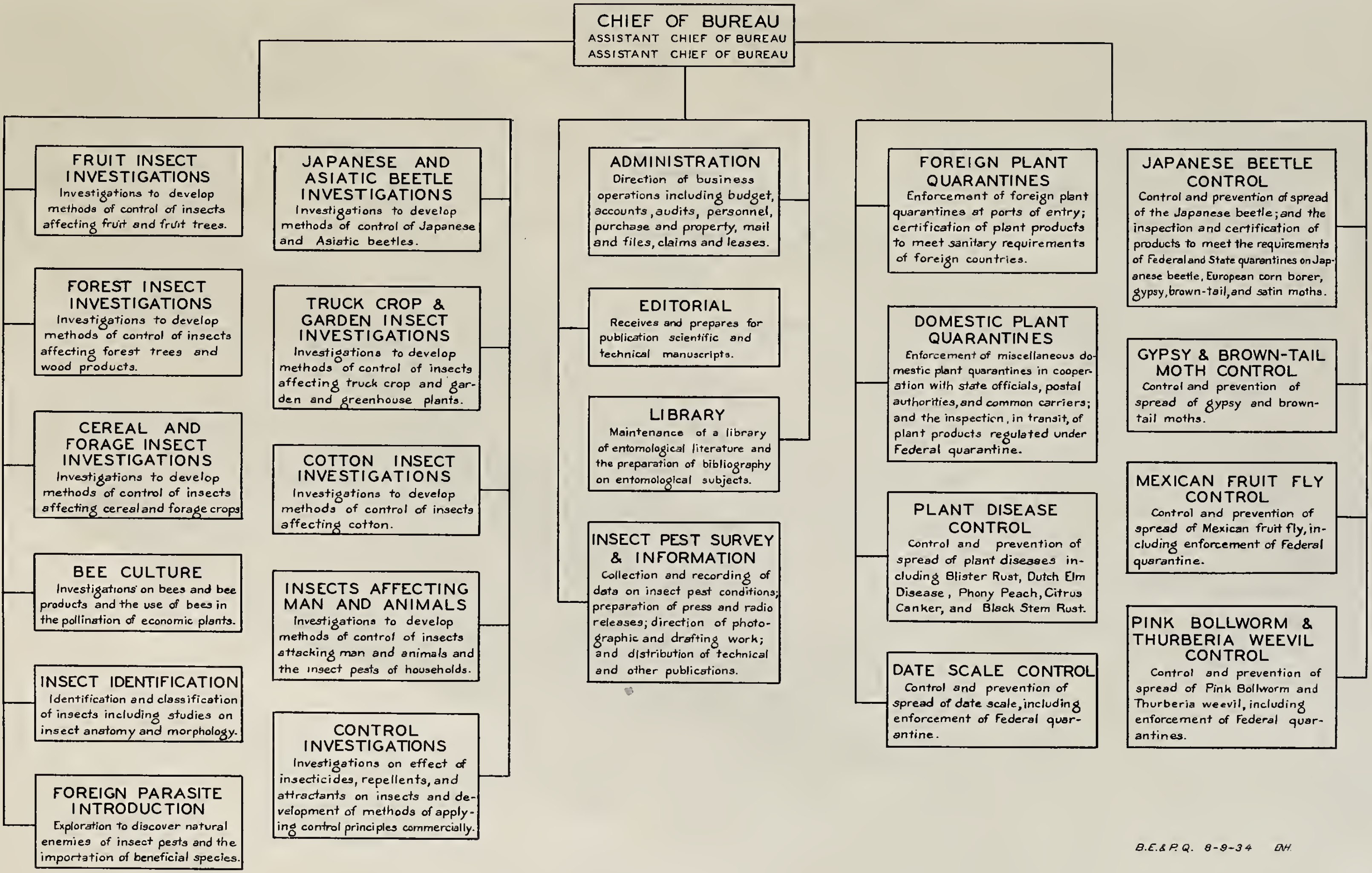
A new maple leaftier.--August Busck has recently identified two specimens of a moth collected at Mattituck, L.I., N.Y., in June 1932, as the European tortricid Argyrotoxa forskaleana L., a maple leaftier not previously known to occur in this country. The insect will, in Mr. Busck's opinion, probably prove to be a minor pest of maple, occasionally abundant in some localities. The specimens were collected by Roy Latham and were brought to Mr. Busck by W. T. M. Forbes.

New northern record for this mosquito.--Aedes mitchellae (Dyar) has been identified by Alan Stone from a mixed lot of specimens submitted in connection with the Civilian Conservation Corps mosquito survey. They were collected at Chicopee Falls, Mass., on June 15, 1934. This is an extreme northern record for a species which until recently was known only from Georgia to Texas. It has recently been collected in light traps in several Maryland localities as far north as College Park.

Rare primitive phalangid received.--N. W. Davis, a graduate student at Cornell University, has recently sent to H. E. Ewing, as a gift to the National Museum collections, two specimens of the primitive phalangid Siro americanus Davis. These specimens represent one of the two known species of the suborder Cyphophthalmi occurring in the New World, and are the only specimens of this suborder in the National Museum. These arachnids are ticklike in appearance and are of about the size of our common wood tick (Dermacentor variabilis Say). The specimens were taken in Florida.

DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE



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FRUIT INSECT INVESTIGATIONS
Investigations to develop methods of control of insects affecting fruit and fruit trees.

FOREST INSECT INVESTIGATIONS
Investigations to develop methods of control of insects affecting forest trees and wood products.

CEREAL AND FORAGE INSECT INVESTIGATIONS
Investigations to develop methods of control of insects affecting cereal and forage crops

BEE CULTURE
Investigations on bees and bee products and the use of bees in the pollination of economic plants.

INSECT IDENTIFICATION
Identification and classification of insects including studies on insect anatomy and morphology.

FOREIGN PARASITE INTRODUCTION
Exploration to discover natural enemies of insect pests and the importation of beneficial species.

JAPANESE AND ASIATIC BEETLE INVESTIGATIONS
Investigations to develop methods of control of Japanese and Asiatic beetles.

TRUCK CROP & GARDEN INSECT INVESTIGATIONS
Investigations to develop methods of control of insects affecting truck crop and garden and greenhouse plants.

COTTON INSECT INVESTIGATIONS
Investigations to develop methods of control of insects affecting cotton.

INSECTS AFFECTING MAN AND ANIMALS
Investigations to develop methods of control of insects attacking man and animals and the insect pests of households.

CONTROL INVESTIGATIONS
Investigations on effect of insecticides, repellents, and attractants on insects and development of methods of applying control principles commercially.

ADMINISTRATION
Direction of business operations including budget, accounts, audits, personnel, purchase and property, mail and files, claims and leases.

EDITORIAL
Receives and prepares for publication scientific and technical manuscripts.

LIBRARY
Maintenance of a library of entomological literature and the preparation of bibliography on entomological subjects.

INSECT PEST SURVEY & INFORMATION
Collection and recording of data on insect pest conditions; preparation of press and radio releases; direction of photographic and drafting work; and distribution of technical and other publications.

FOREIGN PLANT QUARANTINES
Enforcement of foreign plant quarantines at ports of entry; certification of plant products to meet sanitary requirements of foreign countries.

DOMESTIC PLANT QUARANTINES
Enforcement of miscellaneous domestic plant quarantines in cooperation with state officials, postal authorities, and common carriers; and the inspection, in transit, of plant products regulated under Federal quarantine.

PLANT DISEASE CONTROL
Control and prevention of spread of plant diseases including Blister Rust, Dutch Elm Disease, Phony Peach, Citrus Canker, and Black Stem Rust.

DATE SCALE CONTROL
Control and prevention of spread of date scale, including enforcement of Federal quarantine.

JAPANESE BEETLE CONTROL
Control and prevention of spread of the Japanese beetle; and the inspection and certification of products to meet the requirements of Federal and State quarantines on Japanese beetle, European corn borer, gypsy, brown-tail, and satin moths.

GYPSY & BROWN-TAIL MOTH CONTROL
Control and prevention of spread of gypsy and brown-tail moths.

MEXICAN FRUIT FLY CONTROL
Control and prevention of spread of Mexican fruit fly, including enforcement of Federal quarantine.

PINK BOLLWORM & THURBERIA WEEVIL CONTROL
Control and prevention of spread of Pink Bollworm and Thurberia weevil, including enforcement of Federal quarantines.

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